

**Volunteer Monitoring Lab Analysis Support Program**

**FINAL REPORT**

Volunteer monitoring (VM) programs that are awarded funds to offset analytical costs through DEQ’s VM Lab Analysis Support Program are required to submit a final report by the program deadline stated in the Call for Applications. VM programs can use this fillable form to prepare their final report for submittal to DEQ.

**Organization Name**

Bitterroot River Protection Association

**Year**

2024

**How many people participated in data collection?**

12 volunteers

**Who participated in your VM Program?** (*check all that apply*)

[ ] Big Sky Watershed Corps member?

[x] Program leader

[ ] Program paid staff

[x] Community volunteers

[ ] Students

[x] Other (*please describe*):

We had help in data collection from hydrologists working for the Bitterroot National Forest and from a Big Sky Watershed Corps volunteer working for the Bitterroot Water Partnership who wanted more field experience in data collection.

**What were the monitoring goals that you included in your SAP?**

The goals for the Sapphire Front Project were both short term and long term. In the short term they were aimed at determining/confirming the current status of the streams with respect to the state's criteria for nutrient impairment and help establish and track any long term trends within each stream. Another goal was to determine the amount of nutrients coming off the National Forest lands and distinguish it from the contribution from the agricultural/residential lands between the forest and the river.

**Describe how the monitoring you conducted helped your VM program achieve these goals.**

The study design includes water quality monitoring with distributed spatial coverage for evaluating basin wide similarities and differences on the east side of the Bitterroot River. By doing both nutrient sampling and flow measurements at the mouth of the streams we are able to calculate the nutrient load being delivered by each stream.

**Describe how you analyzed your data.**

The data was analyzed to identify any nutrient impaired streams by comparing them to the state's threshold standards. It was also used to calculate nutrient loads being delivered to the Bitterroot River Mainstem. The 2024 data was compared to the 2018-2023 Trend Report produced by MSU Extension Service as well as the 2014 TMDLs for each stream to identify any long term trends.

**Share one or more findings or observations based on your data.**

Comparision of Data collected in 2024 combined with data analyzed in the 2018-2023 Trend Report by
MSU Extension and the 2104 TMDLs indicate that nutrient concentrations have remained relatively stable with no significant declines or improvements in relation to DEQ standards.

**Did you complete all the monitoring described in your program’s SAP?**

[ ]  Yes

[x]  No

**If not, what prevented you from collecting all planned data?**

All of the basic monitoring for nutrients was completed successfully, however flow measurements were not undertaken on a number of occassions where the flows were too high and represented a danger to volunteers. Overall objectives were not significantly compromised although it did reduce the data available for determining total loads of nutrients.

**Briefly describe any data quality issues you encountered.** For example, methods not followed, instrument malfunctions, samples lost or broken, holding times exceeded, contamination, etc.

We experienced instrument malfunctions with the FlowTracker2 but were able to use a a newly purchased Global Water meter. We also had trouble with one of our YSI Pro DSS meters but were able to get by sharing the one used by the volunteers on the DEQ Mainstem Project.

**Describe one or more actions that you could take to improve your monitoring project in the future.**

In practice, concentration and flow measurements were sometimes made on adjacent days for the same sites and for the different sites on the same tributary. This precludes the use of data to align values for analysis. Additional work could be done to pair measurement values from adjacent days and to assess the required assumption that concentration and flow were relatively stable across days, that was beyond the scope of analysis for this report. With the limited number of load values available for paired sites on the same day, we were not able to make strong conclusions about differences in load on tributaries. Follow up work to pair data collection across days could extract more information from this dataset. For data collection moving forward, increasing emphasis on collection of concentration and flow data at both sites on each tributary on the same day would make future analysis easier and more robust. Future data analysis would also benefit from a more detailed assessment of irrigation canal/ditch water mixing with stream flow where the conveyances intersect.

Based on our monitoring results as analyzed in the 2018-2023 Report done by MSU Extension and the latest 2024 results we have made major changes in our monitoring plans for 2025. We are suspending the monitoring done on these six streams and are establishing new locations on three other streams (two on the Sapphire Front and one on the Bitterroot Front as well as a sites on the East Fork and the West Fork just above the confluence in order to further our aims of establishing a network of sites across the entire watershed.

**Do you plan to continue volunteer monitoring in the future?**

[x]  Yes

[ ]  No

**Are there any resources or trainings that you need and wish to have in the future?**

 Yes, we would greatly appreciate the usual annual training sessions provided by DEQ and MMW for nutrient collection and would like some added training in collecting both water and sediment samples to be tested for metals.

**Add any additional information you wish to share?**

Click or tap here to enter text.